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PART D PROCESS INFORMATION This part should include details of (1) the storage and/or treatment process(s), and (2) each hazardous waste unit to be utilized for these processes. Provide the technical design calculations, drawings and specifications for every process and unit. All design information submitted must be certified by a professional engineer registered in the Commonwealth of Kentucky. **D-5 Incinerators 401 KAR 34:240 and 38:190** Interim status shall be terminated for existing incinerator facilities unless a Part B application was submitted on or before November 8, 1986. **D-5a Justification for Exemption 401 KAR 34:240 Section 1(2)** Documentation that the waste to be burned is considered hazardous solely because: • It is ignitable and/or corrosive; or • It is reactive and will not be burned when other hazardous wastes are present in the combustion zone [exemptions not allowed for wastes which can react to produce toxic gases as per 401 KAR 31:030 Section 4(1)(d) and (e) which presents a danger to human health and the environment]; or • It is ignitable and/or corrosive, or is reactive subject to the restrictions indicated above, and contains insignificant concentrations of 31:170 constituents, or documentation that the waste to be burned contains none of hazardous constituents listed in 31:170 which would reasonably be expected to be in the waste. **D-5b Trial Burn** If the applicant proposes conducting a trial burn to demonstrate compliance or is submitting results from a trial burn already conducted, the permit application must include the following items in accordance with the requirements in 38:060 Section 3: D-5b(1) New Incinerator Startup/Shakedown If a trial burn is proposed for a new incinerator, the operations prior to conducting the trial burn must be described including the following: D-5b(1)(a) Startup/Shakedown Period 401 KAR 34:240 Section 5(3)(a) Time required to bring the new incinerator to a point of operational readiness for the trial burn (start-up/shakedown) must be the minimum necessary and cannot exceed 720 hours,	

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or up to 1440 hours if the applicant shows good cause for requiring an extension. D-5b(1)(b) Performance Standards 401 KAR 34:240 Section 4 Operating conditions during startup/shakedown must be those most likely to assure compliance with the following requirements: • DRE of 99.99% for designated POHC's • If HC1 emissions would be more than 1.8 kg/hr (4 lb/hr) stack emissions must be controlled to the larger of either 1.8 kg/hr, or 1% of HC1 in the exhaust prior to entering pollution control equipment • Particulate emissions corrected for oxygen may not exceed 180 mg/dscm (0.08 grains/dscf) D-5b(1)(c) Operating Requirements 401 KAR 34:240 Section 6 Applicants for new incinerators must submit a statement which suggests conditions necessary to achieve compliance during startup/shakedown including, at a minimum, restrictions or • Waste constituents • Waste feed rates • Carbon monoxide exhaust level • Combustion temperature • Combustion gas velocity • Allowable variations in system design or operating procedures • An appropriate indicator of combustion gas velocity Fugitive emissions during startup/shakedown must be controlled by: • Totally sealing the combustion zone, or • Maintaining negative pressure in the combustion zone, or • An alternate method demonstrated to be effective in the application Hazardous wastes not exempted per D-5a, shall **not** be fed to the incinerator during startup/shakedown unless it is operating within the conditions specified for operations. Automatic waste feed cutoff systems, that will stop flow of wastes to the incinerator if operating conditions deviate from established limits, must be operational during the startup/shakedown period. D-5b(2) Trial Burn Plan 401 KAR 38:060 Section 3 The trial burn will set the conditions for the operating parameters in the permit. A trial burn plan should reflect the most economical and efficient way to run an incinerator and still meet the 99.99% DRE, HCL and particulate removal. Guidance manuals are available for incinerator permitting and	

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sampling protocol. The trial burn plan must include the following information: D-5b(2)(a) Incinerator Performance For the duration of the trial burn, the operating conditions must be sufficient to demonstrate: • DRE of 99.99% for designated POHC's • If the HCL emissions would be more than 1.8 kg/hr (4 lb/hr), either stack emissions must be controlled to the larger of either 1.8 kg/hr, or 1% of HCL in the exhaust prior to entering pollution control equipment • Particulate emissions, corrected for oxygen concentration, no greater than 180 mg/dscm (0.08 grains/dscf) D-5b(2)(b) Detailed Description and/or Engineering Drawing of the Incinerator 401 KAR 38:060 Section 3(2)(b)2 This should include: • Manufacturer's name and model number • Type of incinerator • Linear dimensions of incinerator unit including cross sectional area of combustion chamber • Description of the auxiliary fuel system (type/feed) • Capacity of prime mover • Description of automatic waste feed cut-off system(s) • Stack gas monitoring and pollution control equipment • Nozzle and burner design • Construction materials • Location and description of temperature, pressure, and flow indicating meter, and control devices. D-5b(2)(c) Detailed Description of Sampling and Monitoring Procedures 401 KAR 38:060 Section 3(2)(b)3 This should include: • Sampling and monitoring **locations** • Sampling and monitoring **equipment** • Sampling and monitoring **frequency** • Analytical procedures for sample analysis • Monitoring frequency D-5b(2)(d) Detailed Test Schedule for Each Waste This should include: • Dates when trial burns are planned • The duration of each test burn • The quantity of waste to be burned per test • Other relevant factors D-5b(2)(e) Detailed Test Protocols for Each Waste Identified Include: • Ranges of temperature • Waste feed rate	

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• Combustion gas velocity • Use of auxiliary fuel • Other factors that will be varied that will affect the DRE D-5b(2)(f) Pollution Control Devices A description of, and planned operating conditions for, any emission control equipment (pollution control devices) such as the following: • Scrubbers • ESP • Fabric filter D-5b(2)(g) Shut-Down Procedures Procedures to be employed in the event of an equipment malfunction for: • Rapidly stopping waste feed • Shutting down incinerator • Controlling emissions D-5b(2)(h) Proposed (trial) Principal Organic Hazardous Constituents (POHCs) Provide: • List of all POHCs • The trial POHCs for which the DRE will be calculated during the trial burn; and to be confirmed/approved by the Cabinet D-5b(3) Determinations on Trial Burn / Results for Each Test 401 KAR 38:060 Section 3(2)(g) (Use checklist for reviewing Trial burn results which must be submitted within 90 days of the trial burn, along with a certification that it was carried out in accordance with the approved trial burn plan. An extension of this time period may be requested. The operating parameters of the permit can be changed, provided the change is minor. If the trial burn is performed under interim status the results must be submitted with the Part B permit application. The following determinations must be provided (for each test): • Quantitative analysis of waste trial POHC's in the waste feed • Quantitative analysis of exhaust gas to determine the concentration and mass emissions of trial POHC's, oxygen and HC1. • Quantitative analysis of any scrubber water, ash residues or other residues (for estimating the fate of trial POHC's) • Computations of DRE • If HCL emission rate exceeds 1.8 kg/hr, then provide the computation of HCL removal efficiency • Computation of particulate emissions	

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• Identification of sources of fugitive emissions and their means of control • Average temperatures • Minimum temperatures • Maximum temperatures • Combustion gas velocity • Continuous-monitoring results of CO exhaust gas concentrations • Other information specified in the trial burn plan. to ensure compliance with the trial burn D-5b(4) Post-Trial-Burn Operation 401 KAR 38:060 Section 3(3) For the period of time following completion of the trial burn and prior to final modification of the permit conditions (the post-trial-burn period), new incinerators must identify conditions to achieve the following performance: • DRE of 99.99% for designated POHC's • If HCL emissions would be more than 1.8 kg/hr (4 lb/hr), stack emissions must be controlled to the larger of either 1.8 kg/hr or 1% of HCL in the exhaust prior to entering pollution control equipment. • Particulate emissions, corrected for oxygen concentration, no greater than 180 mg/dscm (0.08 grains/dscf) These operating conditions should include, at a minimum, restrictions on: • Waste constituents • Waste feed rates • Stack exhaust CO concentrations • Combustion temperature • Maximum and minimum temperatures • Combustion gas velocity • Allowable variations in system design or operating procedures Fugitive emissions must be controlled by: • Totally sealing the combustion zone, or • Maintaining negative pressure in the combustion zone, or • An alternate method demonstrated to be effective in the application. Hazardous wastes not exempted per D-5a must **not** be fed to the incinerator unless it is operating within the acceptable limits. Automatic waste feed cutoff systems that will stop flow of wastes to the incinerator, when operating conditions deviate from established limits, must be operational during the post-trial burn period.	

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D-5c <u>Information in Lieu of Trial Burn</u> 401 KAR 38:190 Section 2(3) An applicant may submit information to be used in lieu of a trial burn to establish period conditions (note data required under C-1). Information submitted in lieu of a trial burn must include the following: D-5c(1) <u>Engineering Description</u> A detailed engineering description including: • Manufacturer's name and model number • Type of incinerator • Linear dimensions including cross sectional area of combustion chamber • Description of auxiliary fuel system (type/feed) • Capacity of prime mover • Description of automatic waste feed cutoff system(s) • Stack gas monitoring and pollution control monitoring system • Nozzle and burner design • Construction materials • Location and description of temperature, pressure, and flow indicating meters and control devices D-5c(2) <u>Design and Operating Conditions</u> Design and operating conditions of the incinerator will be used compared with that for which comparative burn data are available. D-5c(3) <u>Description of Results</u> Description of results submitted from previously conducted trial burn(s): • Sampling and analysis techniques used to calculate performance standards in 34:240 Section 4, • Methods and results of monitoring temperatures, waste feed rates, carbon monoxide, and an appropriate indicator of combustion gas velocity (including precision and accuracy of this measurement) D-5c(4) <u>Expected Incinerator Operation Information</u> • Expected CO level in stack exhaust gas • Waste feed rate • Combustion zone temperature • Indication of combustion gas velocity • Expected stack gas volume, flowrate, and temperature • Computed residence time in combustion zone • Expected HC1 removal efficiency • Expected fugitive emissions and control procedures • Proposed waste feed cut-off limits.	

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D-5d **<u>Monitoring</u> 401 KAR 34:240 Section 7(1)** The following must be monitored on a continuous basis while incinerating hazardous waste: • Combustion temperature • Waste feed rate • An indicator of combustion gas velocity (to be specified in the permit) • CO at a point downstream of the combustion zone and prior to release to atmosphere **D-5e** **<u>Waste Feed Cutoff</u> 401 KAR 34:240 Section 7(3)** An incinerator must be operated with a functioning system to automatically cut off waste feed when operating conditions deviate from established limits. **D-5f** **<u>Special Requirements for Incinerators Burning Hazardous Wastes F020, F021, F022, F023, F026 and F027</u>** **401 KAR 34:240 Section 4(1)(b)** Incinerators burning F020, F021, F022, F023, F026 and F027 (chlorinated dioxins, chlorinated dibenzofurans, chlorinated phenols) as well as nerve and blister agents N001, N002 and N003 must achieve a DRE of 99.9999 percent for each POHC specified (in the permit) which is harder to incinerate than these F-wastes. The owner or operator must notify the Secretary of his intent to incinerate these wastes.	